

Insulation Options

The effectiveness of insulation is measured by its R-value - the resistance to heat flow. The higher the R-value, the greater the insulating value. The recommended amount of insulation depends on the building design, climate, price of energy, and cost of materials and labor. Choose insulation materials based on the installed cost per R-value per square foot.



It is important to seal air leaks before insulating. Commonly used insulation materials, such as batt and loose-fill products, do not stop air leakage. As air leaks through these materials, it lowers the R-value. For most affordable home designs, materials other than insulation will form the air barrier. There are some insulation products, such as rigid foam sheathings and spray-in-place materials, that can reduce air leakage as well as insulate.

Recycled materials are used in the manufacture of certain insulation materials. Cellulose is made from 100% recycled paper. Fiberglass products use up to 30% recycled glass. Other new products, such as cotton insulation, are manufactured from recycled materials.

Cellulose: [R-3.4 to R-3.8 per inch] Cellulose insulation is ground, recycled newsprint that's treated with a fire-retardant chemical. In attic installations, cellulose is blown in loose. As with any loose-fill material, follow the manufacturer's guidelines for proper density and coverage.

For open framing cavities, especially walls, cellulose can be applied with a glue binder. Ensure that the cellulose dries before the cavity is enclosed. There are also systems for blowing dry, loosefill cellulose behind a mesh support.



lb/cubic ft) has the added advantage of reducing air movement through walls.

Fiberglass: [R-3.1 to R-4.2 per inch; loose-fill R-2.2 to R-2.6 per inch] Fiberglass is spun glass and is available in either batts (faced or unfaced) or loose-fill. Batts can be installed by the do-it-yourselfer, while loose-fill must be professionally installed.

For the attic, either loose-fill or batts can be used. For floors and walls, batts are most common, although there is a blown-in system available. Fiberglass provides very little reduction of air leakage, so be sure to seal holes before insulating. Fiberglass can also be an irritant, so wear gloves, a respirator, and other protective gear.

Spray in place foam: [R-3.4 to R-6 per inch] Spray foam insulations are similar in composition to the foam that comes in canisters for home use. Foams have excellent air sealing properties and high R-values. However, they must be professionally installed.

Cotton: [R-3 per inch] Cotton batts are made from recycled textile scraps. Installation would be the same as for any batt material. However, sharp knives must be used as the material can be somewhat difficult to cut. The material is less of an irritant than fiberglass.

This article is an excerpt from the Southface Energy Factsheet [Insulation Basics](#) .